



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/224,401	12/31/1998	SRINATH HOSUR	TI-28734	3730
23494	7590	11/18/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			NGUYEN, HANH N	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/224,401

Applicant(s)

HOSUR ET AL.

Examiner

Hanh Nguyen

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Interview maded on 11/15/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-21 and 29-45 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 6 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Interview Summary

Application No.

09/224,401

Applicant(s)

HOSUR ET AL.

Examiner

Hanh Nguyen

Art Unit

2662

All participants (applicant, applicant's representative, PTO personnel):

(1) Nguyen, C (PTO).

(3) _____.

(2) Brady, J (Attorney).

(4) _____.

Date of Interview: 15 November 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: N/A.

Identification of prior art discussed: N/A.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Mr Nguyen informed Mr Brady that the last Office action of 9/15/04 should be disregarded.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

DETAILED ACTION

1. The last Office action of 9/15/04 should be disregarded because it lacks TC Director's approval, MPEP 1214.04.

Claim Objection

2. Claims 4, 7, 12 are objected to because of the following informalities:

In claim 4, line 2, "each of" should be deleted because there is only one "control signal" recited in claim 1, line 7.

In claim 7, "the transmitter source" in line 2 should be changed to --transmitter—to be consistent with claim 1.

In claim 12, it is suggested that "the measurement" in line 1 should be changed to --the measurement circuit-- to be consistent with claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

Art Unit: 2662

international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 22, 23 and 24 are rejected under 35 USC 102(e) as being anticipated by Dobrica (U.S Pat. 6,070,086).

Regarding claims 1 and 22, In Fig. 2 Dobrica discloses a circuit comprising a measurement circuit (Fig.2, combination of carrier estimators 41 and 44 and combiner 30) coupled to receive a first input signal from a first antenna 1 of a transmitter (transmitter/receiver) and coupled to receive a second input signal from a second antenna 2 of the transmitter. (See col.5, line 57 to col.6, line 5 & col.6, lines 10-15) and each of the first and second input signals being transmitted at a first time (see col. 6, lines 1-5). The measurement circuit (Fig.2, carrier estimators 41 and 44 and combiner 30) produces an output signal (from combiner 30) corresponding to a magnitude of the first and second input signals (Fig.2, col.6, lines 9-19). A control circuit (Fig.2, control unit 80) coupled to receive the output signal and a reference signal (Fig.2, signal E_{bIo_TH}), the control circuit (Fig.2, control unit 80) produces a control signal (Fig.2, signal input to modulator 70) at a second time in response to a comparison of the output signal and the reference signal (See col.6, lines 22-42).

Regarding claim 2, Dobrica discloses that each of the first and second input signals comprises at least one pilot symbol (Fig.1, reference M, col. 5, lines 25-30).

Regarding claim 3, Dobrica discloses that each of the first and second input signals is a wideband code division multiple access signal (see col.5, lines 60-65).

Regarding claim 4, Dobrica teaches that the output signal comprises a sum of the magnitude of each of the first and second input signals (see col.6, lines 22-25), and wherein the control signal (Fig.2, input signal to modulator 70) comprises at least one transmit power control signal (see col.6, lines 22-30).

Regarding claim 5, Dobrica discloses that the output signal (Fig.2, output signal of combiner 30) comprises a first output signal (Fig.2, output signal of carrier estimator 41) and a second output signal (Fig.2, output signal of carrier estimator 44), the first output signal corresponding to a magnitude of the first input signal and the second output signal corresponding to a magnitude of the second input signal (see col.6, lines 9-11), and wherein the control signal (Fig.2, input signal to modulator 70) comprises at least one transmit power control signal (see col.6, lines 22-30).

Regarding claims 7 and 23, Dobrica discloses an estimate circuit (Fig.3, combination of estimators 103-105) coupled to receive at least a first predetermined signal and a second predetermined signal (Fig.3, pilot symbols) from the transmitter source, each of the first and second predetermined signals having respective predetermined values (see col.6, lines 65 to col.7, line 20), the estimate circuit (Fig. 3, estimators 103-105) producing the first estimate signal (Fig.3, output of estimator 103) and the second estimate signal (Fig.3, output of estimator 104) in response to the first and second predetermined signals (Fig.3, pilot symbols). See col.10, line 65 to col.11, line 15.

Regarding claim 8, the first and second predetermined signals are pilot symbols (see Fig.1, col.5, lines 20-30).

Regarding claim 10, in Dobrica the first and second estimate signals is a Rayleigh fading parameter estimate (see col.4, lines 37-48).

Regarding claim 11, a total path diversity of each of the first and second symbol (Fig.1, reference M) estimates is at least twice a number of transmitting antennas; see col.6, lines 1-5.

Regarding claim 24, Dobrica discloses that at least one control signal (Fig.2, input to modulator 70) comprises at least one transmit power control signal (see col.6, lines 20-30), and wherein the plurality of predetermined signals comprise pilot symbol signals (Fig.1, reference M, and col.5, lines 20-35).

5. Claims 25-27 are rejected under 35 USC 102(e) as being anticipated by Greenstein et al. (Pat. 6,131,016).

Regarding claim 25, Greenstein et al. discloses receiving at a feedback receiver 220 (Fig. 2A,) at least one control signal transmitted from an external source (terminal 20 in Fig.1) at a first time (see col.3, line 64 to col.4, line 4); producing at processor 230 (Fig. 2A) a transmit power level of each of plurality of antennas (Fig.2A, antennas 15 and 16) in response to the control signal (see col.3, lines 15-20, lines 49-55); and transmitting a plurality of signals to the external source (Fig.1, terminal 20) at a respective said transmit power level at a second time from a respective said plurality of antennas (see col.4, lines 1-10).

Regarding claim 26, Greenstein et al. discloses that at least one control signal comprises at least one transmit power control signal (see col.4, lines 1-10).

Regarding claim 27, Greenstein et al. teaches that the transmit power level has the same transmit power adjustment for each of said plurality of antennas (Fig.2A, antennas 15 and 16) in response to one transmit power control signal. (See col.3, lines 12-20).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9 and 12-16 are rejected under 35 USC 103(a) as being unpatentable over Dobrica (U.S Pat. 6,070,086).

Regarding claim 9, Dobrica does not teach that the measurement circuit, the control circuit and the estimate circuit are formed on a single integrated circuit. A single integrated circuit is simply an IC chip widely used the art. Therefore, it would have been obvious to one ordinary skill in the art to implement the measurement circuit, the control circuit and the estimate circuit of Dobrica on an IC chip because the use of IC chips results in small and compact circuits, as is common practice in the art.

Regarding claim 12, Dobrica does not disclose that the measurement circuit is coupled to receive a third input signal from a third antenna and a fourth input signal from a fourth antenna of the transmitter. However, to use third and fourth antennas would have been obvious to one of ordinary skill in the art because more antennas would provide more replicas of information

signals for better receptions when the channel was in a deep fade; thereby, overcoming large attenuation. This result was entirely expected.

Regarding claim 13, Dobrica discloses each input signal comprises at least one pilot symbol (Fig.1, references M).

Regarding claim 14, Dobrica discloses that each of input signals is a wideband code division multiple access (see col.5, lines 60-65).

Regarding claim 15, Dobrica discloses that the output signal (Fig.4, output from reference 205) corresponds to a sum of magnitudes of the input signals (Fig.4, outputs from references 203, 204). See col. 11, lines 15-35.

Regarding claim 16, Dobrica discloses that the control signal (Fig.2, input to modulator 70) comprises at least one transmit power control signal (see col.6, lines 22-30).

Allowable Subject Matter

8. Claims 6 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 17-21²⁹⁻⁴⁵ are allowed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hottinen et al. (Pat. 6584161 B2) discloses transmit diversity and power control system.

Art Unit: 2662

Kitade et al. (US Pat. 6,522,639 B1 and 6,545,991 B1) discloses Transmission/Reception Apparatus and Transmit Power Control Method.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 571 272 3092. The examiner can normally be reached on Monday-Friday, from 8AM to 6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hanh Nguyen
Primary Examiner



APPROVED:
JIN F. NG
DIRECTOR, TC 2600